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SH&G Submittal System – Add/Resubmit Form

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MCI CONSTRUCTORS, INC. (Contractor's Name) | 7649 DYNATECH CT, SPRINGFIELD VA 22153 (Address, State) | 12-16-85 (Mail Date)

Type	Project No.	Contr. Suffix	Spec. Section	Page	Line	Actual Date In	Prom. Date Out	Manufacturer / Supplier
A	13155	C	15616	301	11			WORTHINGTON

Type: A Add, R Resubmit

C.A. Name: E. MEDLING

Discipline Routing (63 65 / 66 68 / 69 71 / 72 74 / 75 77) | Responsibility (78 80)

Routing Order

Checkers Name

Distribution

1. EDP ☐ KP & KV

REVIEWED BY: CHERYL HERBERICH

TBF

Dup. Card3	Ref. No.	Type	Description
4	1	LTR	MCI CLARIFICATION LETTER
4	2	PRT	9ST-300 STEAM TURBINE WITH WOODWARD TG-L GOVERNOR WITH PNEUMATIC ACTUATOR, LE-184647
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MCI CONSTRUCTORS, INC.

7649 Dynatech Court
Springfield, Virginia 22153

Address replies to:
P.O. Box 2786
Springfield, Virginia 22152

Telephone (703) 569-8010
TWX 710-831-0333 MCI ALE

CLIENT: General Services Administration

PROJECT: CIA Headquarters Expansion
Bid Package 3 - Powerhouse Modifications

SUBMITTAL DATE: December 16, 1985

SUBMITTAL NUMBER: 111-R.1

SPEC. SECTION: 15616 VENDOR: Worthington

EQUIPMENT DESCRIPTION: Boiler Feed and Deaerator Feed (Condensate Receiver) Pumps

STATUS: Approved for submittal as clarified

C.Q.C. REPRESENTATIVE: B F

Brian J. Fleming

(CAH)

VARIATIONS AND CLARIFICATIONS

1. This submittal applies to the boiler feed and deaerator feed (condensate receiver) pumps as per Specification Section 15616, Paragraph 14.

2. Note that this Drawing Number LE-184647 has been revised and replaces Drawing No. LE-178371 which was previously submitted and approved in Submittal Package No. 111, Item Number 17. MCI is requesting approval of this revised drawing.

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LE-184647

REF. POLY-1783PL

"SST-300" STEAM TURBINE

WITH
"WOODWARD" TG-L GOVERNOR
WITH PNEUMATIC ACTUATOR

FRAME 302T

NOTES

1. STEAM INLET AND EXHAUST PIPING MUST BE PROPERLY SUPPORTED SO AS NOT TO EXCEED ALLOWABLE FORCES AND MOMENTS GIVEN.
2. HOLD-DOWN BOLTS SHOULD NOT BE RIGIDLY LOCATED UNTIL UNIT IS IN PLACE ON FOUNDATION AS BOLT HOLES MAY VARY .24/6.0mm.
3. 2 HOLES .55 / 14.00mm DIA. LOCATE HOLTING FROM TURBINE SUPPORT SEE NOTE#2.
4. 4 HOLES .72/18mmDIA. LOCATE HOLTING FROM TURBINE SUPPORT. SEE NOTE #2.
5. DRILL AND REAM FOR 2 #8 P&W TAPER DOWELS AFTER FINAL ALIGNMENT IN FIELD.
6. THIS DIMENSION INCREASES BY 8.00/203.2mm WHEN REMOVING TURBINE CASE COVER.
7. PROVISION FOR LIFTING TURBINE CASE COVER ONLY.
8. 1 KEYWAY .376 +.001 -.000 WIDE / 9.6mm +.03 -.00 DEEP
   .209 +.010 -.000 DEEP / 5.3mm +.25 -.00 DEEP.
9. 4 HOLES .63/16mm DIA. LOCATE HOLTING FROM TURBINE SUPPORT. SEE NOTE #2.
10. INSTALL A RELIEF VALVE BETWEEN TURB. IC CASING AND FIRST SHUT OFF. SEE IDENTIFIED DATA SHT FOR REQUIRED FLOW CAPACITY AND RELIEF PRES. RE SETTINGS.
11. CIRCULATION OF COOLING WATER THROUGH BEARING CASE WATER JACKETS IS A NORMAL REQUIREMENT. SEE INSTRUCTION MANUAL FOR POSSIBLE EXCEPTIONS. MAXIMUM WATER PRESSURE 75 psig.
12. TRICO OILERS.
13. OIL LEVEL TO BE MAINTAINED IN BEARING CASES
14. WHEN COOLING WATER HARNESS IS SPECIFIED CONNECTIONS B-V & C-V WILL BE FITED AT TURBOTYME.
15. AIRHEAD PUMP GOVERNOR
    AIR = RPM TURBINE SPEED - MAX.
    AIR = RPM TURBINE SPEED - MIN.
16. INLET CONNECTION CONFORMS TO ANSI B16.5 FOR FACING AND DRILLING REQUIREMENTS.

DRESSER INDUSTRIES
ATLAS DIVISION
ATLANTA, GEORGIA
TURBINE INDEX SHEET
SINGLE STAGE

SERIAL NO. 37686-010 NO. UNITS 1 S. O. W-23924
CUSTOMER WORTHINGTON PUMP ORDER NO. W-753432-035-C
TO BE USED BY INC. S.O. SALTSYNC 10-51063
LOCATION WASHINGTON, D.C. ITEM NO.
DRIVEN MACHINE CURV. PUMP
CERTIFIED PRINT LE-184647 SHIPMENT JUE 09/09/69
TYPE 302T POWER 8.3HP ROTATION CW RPM 1760
STEAM PRESS. 100P.IG STEAM TEMP. 338F EXHAUST 15PSIG
STEAM RATE STEAM RATE 163.9LB/HP-HR
TYPE GOV. TG-1NL SENTINEL VALVE SETTING 110 PSIG
VALVE BODY 3 IN. FLANGE 600LT. R.F. LOCATION RIGHT VALVE 1 1/3
EXHAUST 6 IN FLANGE 150LB F.F. LOCATION LEFT OIL BATH LUBRICATION
RELIEF VALVE SETTING START 110PSIG FULL OPEN 120PSIG TO PASS 1410LB/HR
SPEED CHANGER +5% -15% EMERGENCY TRIP 2149 R. P. M.
GOV. AIR VS SPEED RELATIONSHIP 3 PSI MIN RPM 15 PSI MAX RPM
M. S. COUPLING NONE FURNISHED BY
L. S. COUPLING NONE FURNISHED BY
CAST STEEL GOV AND MODULAR IRON COVER AND DRIVE END
LONGITUDINAL LE-175374-N
EMERG. TRIP LINKAGE LD-176305-N
STM CHEST C LINKAGE LT-176304-N
FURNISH 1 HAND VALVE
WRITTEN BY [illegible] APPROVED BY DATE: 11/8/68

Revised

	KG.	LBS.
TURBINE	272.	600
APPROXIMATE WEIGHT OF UPPER HALF OF TURBINE CASING	27.	60
APPROXIMATE WEIGHT OF TURBINE ROTOR	23.	50

CUSTOMER'S MAJOR CONNECTIONS

CONNECTION	SIZE	RATING	O.D.	B.C.	NO. HOLES	DIA. HOLES		RAISED FACE	REMARKS
"A"	6 / 150	600	9.25 / 209.5mm	7.62 / 193.7mm	8	3/4-10		5.00 DIA. / 127 x 127mm	SEE NOTE #1 1& 4
"B"	6 / 150	150	11.02 / 280.0mm	9.50 / 241.3mm	8	3/4-10		NONE	SEE NOTE #1

CUSTOMER'S AUXILIARY CONNECTIONS

	CONNECTION	NO.	SIZE & TYPE	VALVE REQ'D	VALVE SUPPLIED BY	PIPE TO	REMARKS
A-J	STEAM RING DRAIN	1	1/4 NPT	YES	CUSTOMER	ATMOS. OR OPEN DRAIN	
B-J	TURBINE CASING DRAIN	1	3/8 NPT	YES	CUSTOMER	ATMOS. OR OPEN DRAIN	
C-J	GOVERNOR END - PACKING CASE LEAKOFF	1	1/8 NPT	NO	----	ATMOS. OR OPEN DRAIN	
D-J	DRIVE END PACKING CASE LEAKOFF	1	1/8 NPT	NO	----	ATMOS. OR OPEN DRAIN	
E-J	STEAM CHEST DRAIN	1	1/2 NPT	YES	CUSTOPER	ATMOS. OR OPEN DRAIN	
F-J	VALVE STEM LEAKOFF	2	1/4 NPT	NO	----	ATMOS. OR OPEN DRAIN	
A-S	GOVERNOR AIR SUPPLY	1	1/4 NPT	PO			SEE NOTE #15
A-V	GOV. END BEARING CASE COOLING WATER SUPP.	1	1/4 NPT	NO	NONE	SOURCE OF COOLING WATER	SEE NOTE #11
B-V	GOV. END BEARING CASE COOLING WATER DISCHARGE	1	1/4 NPT	YES	CUSTOMER	DRAIN	SEE NOTE #11
C-V	DRIVE END BEARING CASE COOLING WATER SUPP.	1	1/4 NPT	NO	NONE	SOURCE OF COOLING WATER	SEE NOTE #11
D-V	DRIVE END BEARING CASE COOLING WATER DISCHARGE	1	1/4 NPT	YES	CUSTOMER	DRAIN	SEE NOTE #11

PIPING CALCULATIONS

1. THE TOTAL RESULTANT FORCE AND TOTAL RESULTANT MOMENT IMPOSED ON THE TURBINE AT ANY CONNECTION MUST NOT EXCEED THE FOLLOWING:

$F_r \frac{R-M}{3}$

CONNECTION	R
INLET	1503
EXHAUST	3006

F = RESULTANT FORCE (POUNDS) INCLUDING PRESSURE FORCES WHERE UNRESTRAINED EXPANSION JOINTS ARE USED AT THE CONNECTION EXCEPT ON VERTICAL EXHAUSTS. FULL VACUUM LOAD IS ALLOWED ON VERTICAL DOWN EXHAUST FLANGES. IT IS NOT INCLUDED AS PART OF THE PIPING LOAD.

M = RESULTANT MOMENT, POUND FEET

2. THE COMBINED RESULTANTS OF THE FORCES AND MOMENTS OF THE INLET AND EXHAUST CONNECTIONS, RESOLVED AT THE CENTERLINES OF THE EXHAUST CONNECTION MUST NOT EXCEED THE FOLLOWING TWO CONDITIONS:

   a. THE RESULTANTS MUST NOT EXCEED: $F_c = \frac{1677 - M_c}{2}$

   F_c = COMBINED RESULTANT OF INLET AND EXHAUST FORCES, POUNDS

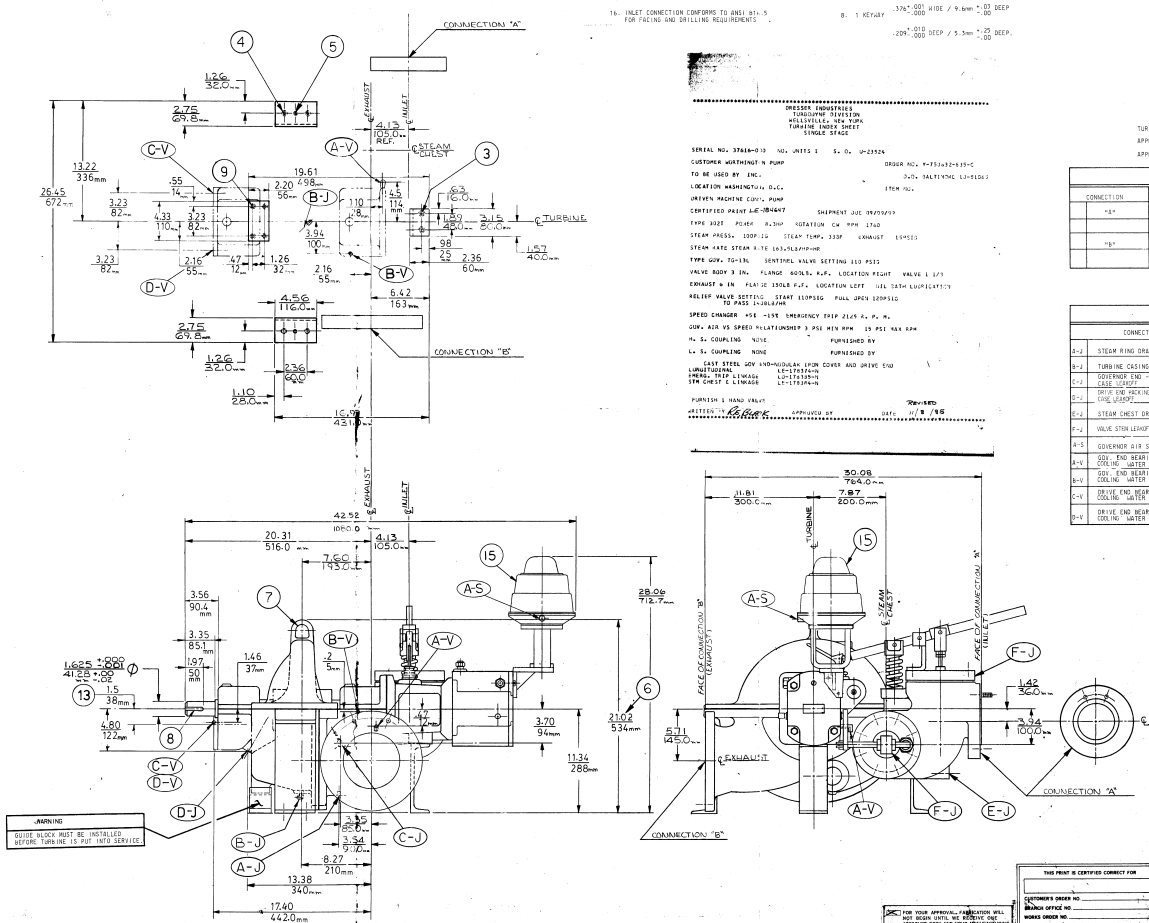
   M_c = COMBINED RESULTANT OF INLET AND EXHAUST MOMENTS AND MOMENTS RESULTING FROM FORCES, POUND FEET

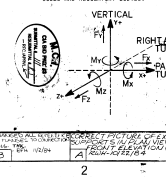
   b. THE COMPONENTS OF THESE RESULTANTS SHALL NOT EXCEED:

F_x =	335 POUNDS	M_x =	1677 POUND FEET
F_y =	859 POUNDS	M_y =	839 POUND FEET
F_z =	671 POUNDS	M_z =	839 POUND FEET

3. FOR TURBINES WITH A VERTICAL EXHAUST AND AN UNRESTRAINED EXPANSION JOINT AT THE EXHAUST, CALCULATE THE VERTICAL FORCE COMPONENT ON THE EXHAUST CONNECTION EXCLUDING PRESSURE LOADING. COMPARE THIS WITH 1/6 OF THE PRESSURE LOADING ON THE EXHAUST. USE THE LARGER OF THE TWO VALUES FOR VERTICAL FORCE COMPONENT ON THE EXHAUST CONNECTION.

4. THESE VALUES OF ALLOWABLE FORCE AND MOMENT PERTAIN TO THE TURBINE STRUCTURE ONLY. THEY DO NOT PERTAIN TO THE FORCES AND MOMENTS IN THE CONNECTING PIPING, FLANGE AND FLANGE BOLTING SHOULD NOT EXCEED THE ALLOWABLE STRESS AS DEFINED BY APPLICABLE CODES AND REGULATORY BODIES.





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THIS PRINT IS CERTIFIED CORRECT FOR
CUSTOMER'S ORDER NO.
BRANCH OFFICE NO.
WORKS ORDER NO.
APPROVED BY DATE:

DRESSER INDUSTRIES, INC. STEAM TURBINE DIVISION

REV.	DESCRIPTION	DATE	APPROVED
B	CORRECT PICTURE OF EXHAUST END FROM SLEEVE 184647-1	12/26	
A	ADD NOTE #16	12/24	

OUTLINE, SST 302T

Turbodyne Steam Turbines

DRAWN P.S. CRAGE	DATE 3-30-64
ORDERED E. FROST	SCALE 1-4
SUPERVISED E. FROST	DRAWING 300
APPROVED [illegible]	PART NO.

LE-184647

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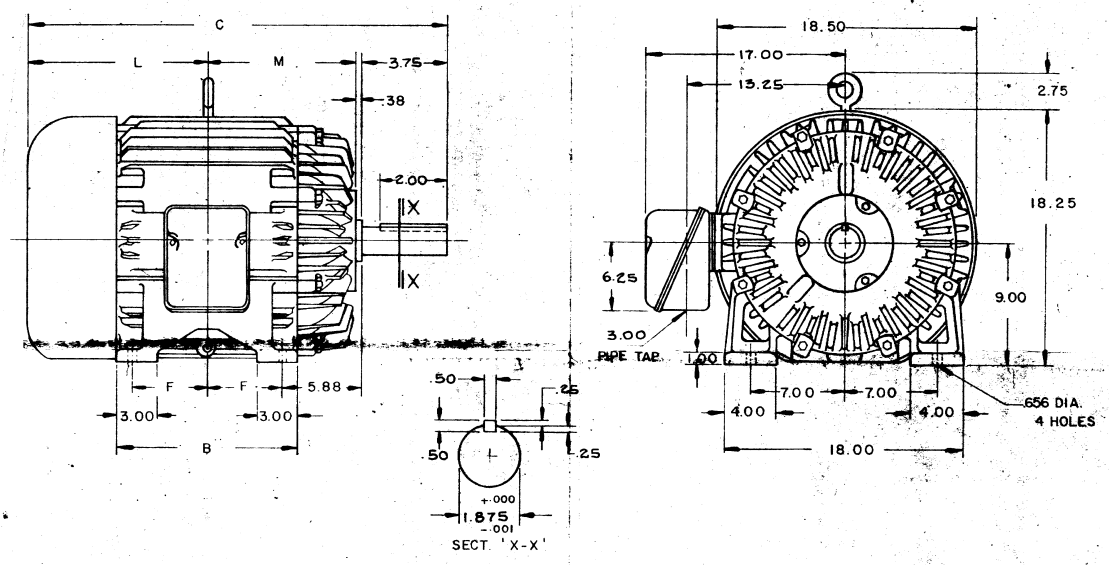
01 3-30-82

NOTE:

1. CONDUIT BOX HAS OPENING FOR SIZE OF CONDUIT SHOWN FOR SMALLER CONDUIT. WIRING CONTRACTOR SHOULD FURNISH REDUCING BUSHING.
2. CONDUIT BOX MAY BE ROTATED IN STEPS OF 90°
3. DIMENSIONS ARE SUFFICIENTLY ACCURATE FOR ORDINARY INSTALLATION.
4. DECIMAL DIMS. WITHOUT LIMITS ARE NOMINAL. NO TOLERANCES ARE IMPLIED.

MARK	NEMA		FACTORY SYMBOL	B	C	F	L	M				MTR.WT.
423	364	US	RGZ-360-8	13.50	28.75	5.62	13.50	11.12				830#
424	365			14.50	29.75	6.12	14.00	11.62				885#



51-810-030-423-424

CERTIFIED PRINT						
CUST. WORTHINGTON PUMP						
P.O.# TS-81107			S.O.# CI 68 821-01			
H.P.	R.P.M.	FRAME	TYPE	VOLTS	PH	HZ
50	3600	365US	RGZ	480	3	60

U FRAME
SHORT SHAFT

M.C.I.
CIA BID PKG. #3
SUBMITTAL
RESUBMITTAL
REC'D APR'81

CONFIDENTIAL - PROPERTY OF
SIEMENS-ALLIS
LITTLE ROCK PLANT

NAME: OUTLINE

TOTALLY ENCL. FAN COOLED, BALL BRG.

STD. SH. EXT. 1.875 x 3.75

DR
CH
AP

SIMILAR TO

SCALE | SHEET

NEMA- 364 365 US | RGZ-360-8

PART NO. 51-810-030-423 424

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